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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,775	07/31/2001	Hisato Oyamatsu	002372.00027	1487

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WASHINGTON, DC 20001

EXAMINER

HU, SHOUXIANG

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 09/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/917,775

Applicant(s)

OYAMATSU, HISATO

Examiner

Shouxiang Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being obvious over Chan et al. ("Chan"; US 6,091,630) in view of Hirano (US 6,252,280).

Chan discloses a SRAM semiconductor device (Figs. 1-3; also see the marked version of its Fig. 2 as attached in the previous Office action, wherein the corresponding first through fourth device regions are marked in red by the examiner for better communication with the applicant), comprising: a first well of p type (56); a second well of n type (54); a well isolation structure in the form of a trench (62; also see col. 4, lines 17-19); a first device region of n type (an upper left portion of 65) directly opposing to a second device region of p type (an upper right portion of 66); a third device region of n type (a left and upper-middle portion of 65) not directly opposing to a fourth device region of p type (a right and lower-middle portion of 66) in a face-to-face way; wherein the well isolation structure has a first width between the first and the second device regions, and the first width is smaller than a second width between the third and fourth device regions. And, it is noted that the doped regions 65 and 66 in Chan are both

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active regions (see col. 4, lines 19-23); thus any region within them can be inherently regarded as a device region.

Although Chan does not expressly disclose that the trench of the well isolation structure can be a shallow trench, one of ordinary skill in art would readily recognize that a shallow trench can be formed on a boundary of two wells of opposite types for high degree of device integration with good well isolation, as evidenced in Hirano (see the shallow trench isolation structure 9 in Fig. 2).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to make the semiconductor device of Chan with the well isolation structure being formed of a shallow trench, as taught in Hirano, so that a semiconductor device with high degree of device integration and good well isolation would be obtained.

Regarding claim 17, it is noted that the third and fourth device regions in Chan can be readily regarded as having substantially same configuration, such as being rectangular with a same size, as the claimed invention does not further define what is the configuration for the third and/or fourth device region(s).

### ***Response to Arguments***

3. Applicant's arguments filed on 7/28/03 have been fully considered but they are not persuasive.

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Applicant's main arguments include: (A) The third and fourth device regions identified in Fig. 2 of Chan by the examiner are not device regions; and (B) There is no motivation to combine Hirano with Chan.

In response to Applicant's argument A above, it is noted that the third and fourth device regions in Fig. 2 of Chan as marked by the examiner can be naturally regarded as device regions as they are located within the active regions 65 and 66, respectively (see col. 4, lines 23-26). The recited device regions can be interpreted in various different ways, as the rejected claims lack sufficient limitations to further define what type(s) the recited device is/are in the recited device regions. And, an active region can always be regarded as a device region, regardless whether the active region is for a transistor or for a power supply component. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., transistor) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding argument B above, In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

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USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Chan teaches an invention same as the one defined in the rejected claims, except that Chan does not expressly disclose that the trench of the well isolation structure can be a shallow trench. Hirano is cited to show that it is well within the ordinary skill in the art to form a shallow trench at the boundary of two wells of opposite types such as the one in Chan, in order to make a device that has a high degree of device integration with good well isolation.

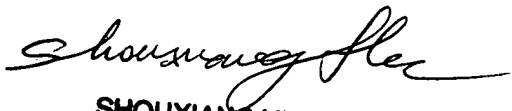
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is (703) 306-5729. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SH  
September 22, 2003

  
SHOUXIANG HU  
PRIMARY EXAMINER